



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,913	12/26/2001	Nam-Kyeong Kim	P67350US0	7589

7590 02/19/2004

JACOBSON, PRICE, HOLMAN & STERN  
PROFESSIONAL LIMITED LIABILITY COMPANY  
400 Seventh Street, N.W.  
Washington, DC 20004

EXAMINER
----------

NGUYEN, KHIEM D

ART UNIT	PAPER NUMBER
----------	--------------

2823

DATE MAILED: 02/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action**

Application No.

10/025,913

Applicant(s)

KIM ET AL.

Examiner

Khiem D Nguyen

Art Unit

2823

--Th MAILING DATE of this communication app ars on th cover sheet with the correspond nce address --

THE REPLY FILED 02 February 2004 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

**PERIOD FOR REPLY** [check either a) or b)]

- a) ☒ The period for reply expires 4 months from the mailing date of the final rejection.
- b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on \_\_\_\_\_. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☐ The proposed amendment(s) will not be entered because:
- (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);
  - (b) ☐ they raise the issue of new matter (see Note below);
  - (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
  - (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.


NOTE: \_\_\_\_\_

3. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.
4. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: none.Claim(s) objected to: none.Claim(s) rejected: 1-4 and 6-13.Claim(s) withdrawn from consideration: 14-17.

8. ☐ The proposed drawing correction filed on \_\_\_\_\_ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_.
10. ☐ Other: \_\_\_\_\_

  
W. DAVID COLEMAN  
PRIMARY EXAMINER

Continuation of 5. does NOT place the application in condition for allowance because: In response to Applicant's argument that Kirlin does not suggest that the La diffusion barrier, which is formed between the ohmic contact layer and the bottom electrode in the contact hole, is applied in the BLT capacitor structure, examiner respectfully disagree. As mentioned in the Office Action mailed December 3rd, 2003, the applicant's admitted prior art of this application (AAPA) discloses the BLT capacitor structure having a bottom electrode (FIG. 1: 15), a BLT (BixLay)Ti3O12 dielectric layer (FIG. 1: 16) and a top electrode (FIG. 1: 17). The Kirlin reference is being used as a secondary reference to disclose depositing a layer of titanium aluminum nitride (FIG. 8: 108) or other suitable diffusion barrier layer material of construction (col. 5, lines 9-19) such as LaN (col. 6, lines 45-62) on the ohmic contact layer in order to reduce the possibility of diffusion of oxygen during subsequent processing steps (col. 6, lines 45-47). Further more, Noh (European Patent Application EP 1 035 590) discloses wherein the BLT dielectric layer, the atomic concentration of Bi is 3.25 and the atomic concentration of La is 0.75 (col. 5-6, paragraphs [0035]-[0036]). Examiner interpret that the atomic concentration of La as disclosed by Noh is within standard deviation of applicant's claimed range of the atomic concentration of La, therefore would serve to reduce the fatigue of the dielectric layer (col. 3, paragraph [0013]). Thus, the combination of the teaching of AAPA, Kirlin, and Noh is appropriate and have provided the motivations to modify or combine the references to arrive a LaN diffusion barrier layer on the ohmic contact layer in the BLT capacitor structure containing La in a dielectric layer as claimed in the present invention. For these reasons, examiner holds the rejection proper.